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SALTON SEA ECOSYSTEM RESTORATION PLAN

Description of Air Quality Conditions Under the No Action Alternative

May 2005

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DESCRIPTION OF AIR QUALITY CONDITIONS UNDER THE NO ACTION ALTERNATIVE

PURPOSE OF THIS TECHNICAL MEMORANDUM

In November 2004, an Administrative Draft No Action Alternative Report for the Salton Sea Ecosystem Restoration Plan (ERP) was submitted for review (DWR, 2004). At that time, the Administrative Draft Report addressed a number of issue areas. However air quality was not addressed, because separate studies of air quality issues were being conducted to support development of the ERP and the Programmatic Environmental Impact Report (PEIR). Since then, significant progress has been made in developing information regarding the potential air quality impacts under the No Action Alternative, particularly related to emissions from exposed playa and associated control measures. Although this information is still under development and refinement, this technical memorandum is intended to provide a preliminary description of the anticipated air quality conditions under the No Action Alternative.

INTRODUCTION

Defining the future air quality in the Salton Sea Air Basin under the No Action Alternative is an inherently challenging task. There are several major variables at play, each with varying degrees of uncertainty. These variables include future population growth in the region, the extent of various emissions sources, emissivity of each source, and the success of the local jurisdictions and others in implementing effective air emissions control measures over the coming decades. Pollutant transport from Mexico also influences air quality compliance in the region.

An understanding of the potential future air quality conditions in the absence of a Salton Sea ERP is essential to evaluating the effects and benefits of ERP alternatives. Therefore, emissions and conditions that may affect future air quality in the basin have been projected and are presented in this technical memorandum. Ranges of possible conditions are used where helpful. Because studies are still underway, results should be considered preliminary. The actions anticipated to occur in the No Action Alternative for the Salton Sea ERP PEIR have been previously described in a separate report (DWR, 2004). These actions are summarized briefly here, to provide the context for future potential air quality conditions.

The objective of this document is to define, to the extent possible, the anticipated air quality conditions in the Basin between now and the year 2077. Because 75 years is a lengthy timeframe, this analysis will look at snapshots of air quality during the 75-year study period (i.e., existing conditions, 2017, 2046, and 2077.).

This technical memorandum is organized as follows:

- Summary of the No Action Alternative
- Projects, Policies, and Requirements that May Affect Future Air Quality Conditions
- Existing and Projected Emissions
- Potential Effects of No Action Alternative Emissions on Air Quality

SUMMARY OF THE NO ACTION ALTERNATIVE

The No Action Alternative reflects existing conditions at the time of the Notice of Preparation (NOP) and scoping activities, plus changes that are reasonably expected to occur in the foreseeable future if the project is not implemented, based on current plans and consistent with available infrastructure and community services [California Environmental Quality Act (CEQA) Guidelines Section 15126(e)]. In this case, the “project” or “action” is identification and implementation of a program for restoration of the Salton Sea ecosystem. The No Action Alternative is based on projection of conditions that would occur if

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the Project alternatives were not implemented. In the PEIR, the environmental impacts of the No Action Alternative will serve as a basis for comparison with other alternatives.

Preliminary Project List

In the Administrative Draft No Action Alternative Report (DWR, 2004), several projects and plans that were implemented or approved by the NOP date of February 27, 2004, were identified. These projects are listed in Table 1.

Table 1
Preliminary Project List for the No Action Alternative[a]

Past, Present or Reasonably Foreseeable Projects	No Action Alternative	Deferred to Cumulative Impact Analysis	Status
Quantification Settlement Agreement Projects			
Imperial Irrigation District Water Conservation and Transfer Project	X		Implementation initiated
State Water Resources Control Board Order 2002 –13 (includes the following:)	X		Approved December 2002.
Salton Sea Habitat Conservation Strategy	X		
Air Quality Mitigation and Monitoring Plan	X		
Razorback Sucker Habitat Conservation Strategy	X		
Tamarisk Scrub Habitat Conservation Strategy	X		
Drain Habitat Conservation Strategy	X		
Desert Pupfish Habitat Conservation Strategy	X		
Coachella Canal Lining Project	X		Implementation initiated
All-American Canal Lining Project	X		Implementation initiated
Regional Projects			
Mexicali Wastewater Improvements	X		Construction anticipated 2006
New River Wetlands Pilot Study	X		Implementation initiated
Salton Sea Geothermal Project (Units 6)	X		Approved
Colorado River Basin Salinity Control Projects	X		Implementation initiated
Total Maximum Daily Load Implementation (various)	X	X	Implementation initiated for some, others still in planning phase
Mexicali Power Production	X		Implementation initiated
Plans			
Riverside County General Plan	X		Implemented
Imperial County General Plan	X		Implemented
Bureau of Land Management Northern and Eastern Colorado Desert Coordinated Management Plan	TBD	TBD	To be defined prior to Draft PEIR
Bureau of Land Management Imperial Sand Dunes Recreation Area Management Plan	TBD	TBD	To be defined prior to Draft PEIR

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Table 1
Preliminary Project List for the No Action Alternative[a]

Past, Present or Reasonably Foreseeable Projects	No Action Alternative	Deferred to Cumulative Impact Analysis	Status
Bureau of Land Management Coachella Valley CDCA Amendment	TBD	TBD	To be defined prior to Draft PEIR
Bureau of Land Management Santa Rosa and San Jacinto Mountains National Monument Management Plan	TBD	TBD	To be defined prior to Draft PEIR
Coachella Valley Water Management Plan	X		Approved. (Includes other QSA-related transfers such as the exchange of State Water Project water between Metropolitan Water District of Southern California and Coachella Valley Water District.)
Coachella Valley Multi-Species Habitat Conservation Plan		X	Planning stage
Imperial County / Imperial Irrigation District Groundwater Management Plan	TBD	TBD	Status unknown
U.S. Bureau of Reclamation Lower Colorado River Multi-Species Habitat Conservation Plan	X		Recently approved
Torres Martinez Land Use Management Plan	TBD	TBD	To be defined prior to Draft PEIR
Other tribes land use plans	TBD	TBD	To be defined prior to Draft PEIR
Regulatory agency and tribal air quality management plans and State Implementation Plan (SIP)s	TBD	TBD	Various stages of planning and implementation
West Mojave Coordinated Management Plan	TBD	TBD	To be defined prior to Draft PEIR
Lower Colorado River Desert Region Plan	TBD	TBD	To be defined prior to Draft PEIR
Eagle Mountain Mine and Mesquite Regional Landfill Plan	TBD	TBD	To be defined prior to Draft PEIR
Newmont Gold Company Expansion of Mesquite Gold Mine	TBD	TBD	To be defined prior to Draft PEIR
Mexicali land use plans and Gateway of the Americas Plan	TBD	TBD	To be defined prior to Draft PEIR
Mexicali land use plans	TBD	TBD	To be defined prior to Draft PEIR

[a] The project list presented in this table is preliminary and subject to change.

Source: DWR, Administrative Draft No Action Alternative Report (November, 2004).

Exposed Playa Under the No Action Alternative

Under the No Action Alternative for the ERP, reduced inflows to the Salton Sea increase the areal extent of exposed playa, and this may result in dust, or PM_{10} emissions, from previously inundated areas.

As described in the Draft No Action Alternative Report, reductions in inflows to the Sea from the QSA and IID Water Conservation and Transfer Project were described and quantified in the environmental documents prepared and approved for those projects in 2002 and 2003. Subsequent to approval of those documents, additional inflow reductions to the Sea were approved related to the Mexicali sewage

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treatment improvements, Mexicali power production,, and implementation of the CVWD Water Management Plan. A summary of inflow changes due to each of these projects is shown in Table 2.

Table 2
Summary of Changes in Salton Sea Inflows under the No Action Alternative compared to Existing Conditions

No Action Alternative	Effect on Salton Sea Inflows
QSA – IID Water Conservation and Transfer Project	Reduction in flows (acre-feet/year) to the Sea ramps-up incrementally throughout the study period. Beginning in 2008, flows reduced by 2,600; in 2018 reduced by 30,000; in 2026 reduced by 300,000; and in 2046 reduced by 250,000 through the end of the study period.
Inflow Reductions Initiated After Approval of the QSA	
Mexicali Wastewater Treatment Plant Improvements	Will reduce inflows to Salton Sea by 15,300 acre-feet/year in 2006 and by 22,500 by 2014
Startup of Mexicali Power Production	Will reduce flows to Sea by 10,700 acre-feet/year
Colorado River Operations resulting in reduced availability of surplus water for Mexico	TBD
Implementation of CVWD Water Management Plan	Increase in flows to the Salton Sea of approximately 70,000 acre-feet/year

Notes: All values presented are approximate.

The No Action Alternative for the ERP PEIR includes reductions of inflows due to all projects and actions approved before issuance of the NOP in February 2004. However, to assure an understanding of the relative contributions to exposed areas, Figures 1, 2 and 3 show the quantity of exposed acres attributable to the QSA Baseline, QSA implementation, and to the Salton Sea ERP No Action Alternative (QSA plus subsequently approved projects), respectively, at three points during the 75 year study period, 2017 – when mitigation water to the Sea is stopped, 2046 – when the initial contract period for the water transfer is up for renewal, and 2077 – end of the study period. It is important to note that as of the issuance of this Draft report, discussions regarding inflows under the No Action Alternative for the ERP are still underway. Figures 1,2 and 3 are therefore preliminary. It is also important to note that do to the parallel timing of flow reductions of the various actions affecting inflows, it is impossible to attribute specific exposed acres to specific actions. However, the relative amounts of exposed areas can be assigned. The numbers of acres anticipated to be exposed under the QSA Baseline, the QSA and the Salton Sea ERP No Action Alternative in 2017, 2046 and 2077 respectively, are shown on Tables inset into Figures 1, 2 and 3.

PROJECTS, POLICIES, AND REQUIREMENTS THAT MAY AFFECT FUTURE AIR QUALITY CONDITIONS

Under the No Action Alternative, several of the projects and plans listed under Table 1 have elements that may affect future air quality. The most significant of these include:

- Quantification Settlement Agreement (QSA) and the associated projects and mitigation
- County and local General Plans
- Air Quality Management Plans (AQMPs) and State Implementation Plans (SIPs).
- Coachella Valley Water Management Plan
- Mexicali wastewater improvements
- Mexicali power production
- Change in surplus flow to Mexico

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Figure 1 Projected Exposed Acres, Year 2017

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Figure 2 Projected Exposed Acres, Year 2046

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Figure 3 Projected Exposed Acres, Year 2077

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Additional discussion pertaining to the projects and plans to be implemented under the No Action Alternative for the ERP is provided below, with focus on those with the greatest potential to affect air quality (i.e., implementation of the QSA, General Plans, and AQMPs/SIPs).

QSA Implementation and Associated Air Quality Mitigation

The QSA is a consensual reallocation of Colorado River water based on a series of agreements. The agreements include several different actions including the IID Water Conservation and Transfer Project and the All American and Coachella Canal lining projects. The QSA provides part of the mechanism for California to limit its water diversions from the Colorado River in normal years to its apportioned amount of 4.4 million acre-feet per year under the California Plan. In addition to the specific projects, there are a series of agreements and laws which govern the funding and implementation of various components of the QSA. Those with aspects affecting air quality are described below.

IID Water Conservation and Transfer Project

Implementation of the IID Water Conservation and Transfer Project would reduce inflows to the Salton Sea, resulting in an increase in the amount of playa exposed over the next 75 years. The IID Water Conservation and Transfer Project EIR/EIS and Addendum projected an increased in exposed playa of approximately 45,000 acres over the 75 year project period compared to the No Action Alternative for that project.

To mitigate the potential air quality impacts from exposed playa, the 2003 IID Water Conservation and Transfer Project Mitigation, Monitoring, and Reporting Program included a four-step air quality mitigation and monitoring plan (four-step air quality plan), as summarized below:

(1). ***Restrict Access****. Public access, especially off-highway vehicle access, would be limited, to the extent legally and practicably feasible, to minimize disturbance of natural crusts and soils surfaces in future exposed shoreline areas. Prevention of crust and soil disturbance is viewed as the most important and cost-effective measure available to avoid future dust impacts. IID or other governmental entities own or control most of the lands adjacent to and under the Salton Sea. Fencing and posting would be installed on these lands in areas adjacent to private lands or public areas to limit access.*

(2). ***Research and Monitoring****. A research and monitoring program would be implemented incrementally as the Sea recedes. The research phase would focus on development of information to help define the potential for problems to occur in the future as the Sea elevation is reduced slowly over time. Research would:*

(a). Study historical information on dust emissions from exposed shoreline areas.

(b). Determine how much land would be exposed over time and who owns it.

(c). Conduct sampling to determine the composition of "representative" shoreline sediments and the concentrations of ions and minerals in salt mixtures at the Sea. Review results from prior sampling efforts. Identify areas of future exposed shoreline with elevated concentrations of toxic substances relative to background.

(d). Analyze to predict response of Salton Sea salt crusts and sediments to environmental conditions, such as rainfall, humidity, temperature, and wind.

(e). Implement a meteorological, PM_{10}, and toxic air contaminant monitoring program to begin under existing conditions and continue as the IID Water Conservation and Transfer Projects implemented. Monitoring would take place both near the sources (exposed shoreline caused by the Project) and near the receptors (populated areas) in order to assess the

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source-receptor relationship. The goal of the monitoring program would be to observe PM_{10} problems or incremental increases in toxic air contaminant concentrations associated with and the increased exposure of seabed to provide a basis for mitigation efforts.

(f). If incremental increases in toxic air contaminants (such as arsenic or selenium, for example) are observed at the receptors and linked to emissions from exposed shoreline, conduct a health risk assessment to determine whether the increases exceed acceptable thresholds established by the governing air districts and represent a significant impact.

(g). If potential PM_{10} or health effects problem areas are identified through research and monitoring and the conditions leading to PM_{10} emissions are defined, study potential dust control measures specific to the identified problems and the conditions at the Salton Sea.

(3). ***Create or Purchase Offsetting Emission Reduction Credits.*** *This step would require negotiations with the local air pollution control districts to develop a long-term program for creating or purchasing offsetting PM_{10} emission reduction credits. Credits would be used to offset emissions caused by the IID Water Conservation and Transfer Project, as determined by monitoring (see measure 2, above).*

(4). ***Direct emission reductions at the Sea****. If sufficient offsetting emission reduction credits are not available or feasible, Step 4 of this mitigation plan would be implemented. It would include either, or a combination of:*

(a). Implementing feasible dust mitigation measures. This includes the potential implementation of new (and as yet unknown or unproven) dust control technologies that may be developed at any time during the term of the IID Water Conservation and Transfer Project Proposed Project; and/or

(b). If feasible, supplying water to the Sea to re-wet emissive areas exposed by the IID Water Conservation and Transfer Project, based on the research and monitoring program (Step 2 of this plan). This approach could use and extend the duration of the Salton Sea Habitat Conservation Strategy. If, at any time during the Project term, feasible dust mitigation measures are identified, these could be implemented in lieu of other dust mitigation measures or the provision of mitigation water to the Sea. Thus, it is anticipated that the method or combination of methods could change from time to time over the Project term.

The No Action Alternative for the ERP includes implementation of this four-step air quality plan.

Mitigation Responsibility and Implementation

The enforcement, monitoring, and funding of implementation of the four-step air quality plan is established under a set of inter-related documents, permits, agreements, and laws as described below.

IID Water Conservation and Transfer Project EIR/EIS, Addendum, and Mitigation, Monitoring, and Reporting Program

These documents, prepared by the Imperial Irrigation District, describe the four-step air quality plan as mitigation for the potentially significant and unavoidable impacts of exposing playa due to the reduction of inflows to the Salton Sea incidental to the transfer of water. However, it should be noted that even with implementation of this plan, the EIR /EIS for the IID Water Conservation and Transfer Project concluded that the air quality impact resulting from this project would be potentially significant and unavoidable.

State Water Resources Control Board Order

As a responsible agency for the IID Water Conservation and Transfer Project, the SWRCB acknowledged and accepted the incremental implementation of the four-step air quality plan to mitigate potential air

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quality impacts from the exposed playa through the State Water Resources Control Board (SWRCB) Order[1] (SWRCB, 2002). To develop an adequate baseline, the SWRCB Order requires that Step 2 of the plan, research and monitoring, be implemented within six months of the effective date of the approval – December 20, 2002. Further, the SWRCB Order stated that the ICAPCD and the South Coast Air Quality Management District (SCAQMD) have jurisdiction over different parts of the Salton Sea geographical region. The SWRCB Order delegated to the Chief of the Division of Water Rights the authority to determine, in consultation with the ICAPCD, the SCAQMD, and the California Air Resources Board (ARB), whether any mitigation measure identified as part of the four-step plan is feasible. With implementation of the feasible mitigation measures, the SWRCB stated that they believe that the impacts to air quality due to exposed shoreline would be less than significant. Nonetheless, the Final EIR/EIS states that dust emissions from shoreline exposure are a potentially significant, unavoidable impact. The SWRCB Order concludes that IID could mitigate the air quality impacts to less than significant levels, however, to the extent that impacts are unmitigable and unavoidable, the SWRCB found that the critical importance of a reliable Colorado River water supply outweighs the impacts. The SWRCB Order also specified that IID must comply with all applicable requirements of the ICAPCD and the SCAQMD SIPs and PM_{10} rules.

QSA Agreements and Legislation

As part of the QSA, an Environmental Cost Sharing Agreement (ECSA) was executed between the Coachella Valley Water District (CVWD), the Imperial Irrigation District (IID), the Metropolitan Water District (MWD), and the San Diego County Water Authority (SDCWA) to apportion the costs of implementing mitigation measures required under the EIR/EIS for that Project, including implementation of the four-step air quality plan. In September 2003, the California Legislature passed three bills related to the QSA and restoration of the Salton Sea, Senate Bill Nos. 277, 317, and 654. Collectively, these bills create funding mechanisms for mitigation of the QSA's impacts on the Salton Sea, assure that implementation of the QSA will be consistent with Salton Sea restoration, and provide significant funding for Salton Sea restoration planning.

Senate Bill No. 654 (SB 654) allocates environmental responsibility among the water agencies and the state for environmental mitigation requirements related to implementation of the QSA, including the IID Water Conservation and Transfer Project. The bill provides a mechanism to implement funding of mitigation costs by authorizing the California Department of Fish and Game to enter into a joint powers agreement (JPA) with CVWD, IID, and SDCWA for the purpose of financing environmental mitigation costs. This law also limits the costs for environmental mitigation to be paid by IID, CVWD, and SDCWA to a total of $133 million.

Under a separate agreement forming a JPA between the State of California acting by and through the Department of Fish and Game, CVWD, IID, and SDCWA, the State of California has accepted responsibility for mitigation costs associated with the IID Water Conservation and Transfer Project that exceed the $133 million.

> *SB 654 established a mechanism to implement and allocate environmental mitigation cost responsibility among IID, CVWD, SDCWA, and the State for the implementation of the 1998 IID/SDCWA Transfer Agreement and the IID/CVWD Acquisition Agreement. Costs for environmental mitigation requirements up to and not to exceed a present value of $133,000,000 shall be borne by IID, CVWD and SDCWA, with the balance to be borne by the State. (QSA JPA Creation and Funding Agreement, Recital F, 2003)*

Mitigation requirements for emissions resulting from exposed acres under the IID Water Conservation and Transfer Project were not tied to a specific number of acres, any specific location(s), or a specific sea elevation. Responsibility under SB 654 and related agreements would include only those acres exposed by the implementation of the QSA, including the IID Water Conservation and Transfer Project. This

would not include acreage that would have been exposed under the Baseline for the IID Water Conservation and Transfer Project/QSA (to -235 feet mean sea level [msl]), nor would it include the additional acreage exposed due to the anticipated reduction in flows from Mexico.

Mitigation Assumptions for the No Action Alternative

This analysis of air quality conditions under the No Action Alternative is therefore based on the following assumptions regarding exposed playa:

- The four-step air quality plan to identify and control emissions from the exposed playa resulting from the QSA projects is in place and adequate funding mechanisms and responsibilities have been identified.
- Emissions from the playa exposed under the Baseline for the IID Water Conservation and Transfer Project (to -235 feet msl), plus emissions from the playa exposed due to projects approved after the QSA approval, would not fall under the mitigation responsibilities of the State of California, as established under the QSA JPA Creation and Funding Agreement, Recital F, 2003. These uncontrolled emissions would add to air quality issues in Salton Sea watershed.
- As agencies with jurisdiction over areas not attaining National Ambient Air Quality Standards (NAAQS), the air quality agencies in the Salton Sea watershed must prepare AQMPs and SIPs that demonstrate attainment of the applicable standards in the next 5 to 20 years. The SIPs will require application of Best Available Control Measures (BACM) to reduce emissions from both playa and non-playa emissions sources in the area.
- Under the 2003 Salton Sea Restoration Act, authorized under SB 277, Chapter 611, the State is required to mitigate air quality impacts associated with restoration activities to the maximum extent feasible. Under the No Action Alternative, no restoration activities would occur, therefore, no exposed playa emissions or other air quality impacts would be associated with restoration activities.

General Plan Implementation

Under the No Action Alternative, it is assumed that the growth projections included in the General Plans for each of the local jurisdictions within the Salton Sea watershed will be achieved. These plans generally assume build-out conditions in each jurisdiction. Details of these projections are provided in the Administrative Draft No Action Alternative Report (DWR, 2004). As noted in the draft No Action Alternative Report, the planning horizons for General Plans are substantially shorter than the 75-year study period under the No Action Alternative. The potential for additional growth in the future, beyond that described in the applicable General Plans, will be addressed in the cumulative impacts section of the PEIR. AQMPs and SIPs developed by local air quality agencies are required to consider future growth when projecting future emissions and required controls as discussed in the following section.

At this time, growth projections and land use plans for Mexicali are not available and therefore the potential for changes in air quality in that region are not included in this No Action Alternative. It is anticipated that they will be included in the PEIR.

Adoption and Implementation of AQMPs and SIPs

Under existing conditions, ambient air quality standards for several air pollutants are not being achieved in portions of the Salton Sea watershed, as presented in Table 3. In the Salton Sea Air Basin, the air pollutants of greatest concern are ozone (O_3) and the ozone precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOC), primarily from vehicle and equipment exhaust, and fine particulate matter (PM_{10}) from soil disturbance and wind erosion (fugitive dust). Agricultural operations and transport of pollutants from Mexico also affect air quality in the area.

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Table 3
Portions of the Salton Sea Watershed With Air Concentrations that Exceed National and California Ambient Air Quality Standards

County (or Portion of)	Carbon Monoxide	Fine Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Ozone
Imperial	C	N and C		N and C
Riverside (Coachella Valley)		N and C		N and C
San Bernardino		N and C	N and C	N and C
San Diego		C	N and C	N and C

N = Ambient air concentrations exceed the National Ambient Air Quality Standards
C = Ambient air concentrations exceed the California Ambient Air Quality Standards
Source: California Air Resources Board, Area Designations, www.arb.ca.gov

For areas not meeting standards, the responsible air districts must prepare plans with control measures sufficient to attain national standards by predetermined attainment dates. Once standards are achieved, plans are required to ensure compliance with standards is maintained. Air quality agencies must quantify emissions from existing sources and forecast future emissions to support development of AQMPs and SIPs. These plans must be consistent with population forecasts and growth assumptions in the applicable County and local General Plans. The schedule for air quality plans is established by the Federal Clean Air Act, for example, SIPs for the new 8-hour ozone standard and the $PM_{2.5}$ standard are due in 2007.

Imperial Valley is currently classified by the U.S. Environmental Protection Agency as a serious nonattainment area for the PM_{10} NAAQS. Particulate matter in Imperial County comes from local and agricultural sources; the U.S. Environmental Protection Agency considers a significant fraction to be transported from nearby Mexico. Sources of particulate matter include a combination of windblown dust from natural and disturbed land areas, with the primary source being vehicles, including off-road vehicles that use paved and unpaved roads. Construction and agriculture also contribute to particulate levels.

As a result of the area's designation as a federal moderate to serious nonattainment area for PM_{10}, the ICAPCD has published a SIP for PM_{10} in the Imperial Valley (ICAPCD, 1993), and this document is currently being updated (Romero, 2005). The Salton Sea Air Basin also has elevated concentrations of ground-level ozone, which is transported into the basin from urban areas to the west and northwest. ICAPCD will prepare a SIP for the 8-hour ozone standard by 2007.

Every three years, the SCAQMD prepares an overall plan for air quality improvement. Each iteration of the plan is an update of the previous plan and has a 20-year horizon. The 2003 AQMP updates the attainment demonstration for the federal standards for ozone and particulate matter (PM_{10}), addresses several state and federal planning requirements, and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. The 2003 AQMP points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/99 Plan) from all sources, specifically those under the jurisdiction of the ARB and the U.S. Environmental Protection Agency (EPA) (SCAQMD, 2003a), e.g., mobile sources and non-road engines.

The Coachella Valley, located in the Salton Sea Air Basin and under SCAQMD's jurisdiction, has been designated as a serious nonattainment area for PM_{10}. The Coachella Valley PM_{10} SIP (CVSIP), adopted on June 21, 2002, establishes additional controls needed to demonstrate attainment of the PM_{10} standards. The 2002 CVSIP included a request for extension of the PM_{10} deadline and met all applicable federal CAA requirements, including a Most Stringent Measures analysis, control measures, and attainment demonstration. U.S. Environmental Protection Agency approved the 2002 CVSIP on April 18, 2003. At the time of adoption, the AQMD committed to revising the 2002 CVSIP with the latest approved mobile source emissions estimates, planning assumptions and fugitive dust source emission estimates, when they

become available. The 2003 CVSIP updates those elements of the 2002 CVSIP; the control strategies and control measure commitments have not been revised and remain the same as in the 2002 CVSIP. The 2003 CVSIP contains updated emissions inventories, emission budgets, and attainment modeling (SCAQMD, 2003b).

Even in areas achieving the standards, SIPs for the $PM_{2.5}$ and 8-hour ozone standards are required by 2007. As a result, emission inventory and forecasting studies are underway in the Salton Sea Air Basin at this time.

As noted previously, under the No Action Alternative, emissions from playa under the Baseline for the IID Water Conservation and Transfer Project (to -235 feet msl), plus emissions from the playa exposed due to projects approved after the QSA approval, would not fall under the mitigation responsibilities of the State of California. These uncontrolled emissions would add to air quality issues in Salton Sea watershed. As a result, the AQMPs and SIPs under development would need to include these emissions in the emissions inventories used to support attainment planning. This analysis of air quality conditions under the No Action Alternative assumes that SIPs will be developed and implemented to evaluate and control significant sources of emissions. It is further assumed that local jurisdictions will be in compliance with their SIPs and in the air basins within the study area will reach attainment for the applicable standards by the legislated deadlines.

Among air pollutants, PM_{10} is a possible exception to the general assumption of long-term attainment. While it is subject to the SIP process, fugitive windblown dust emissions from vacant lands pose challenges. Unlike concentrated (or "significant") sources of pollutants that are more readily identified and controlled, fugitive dust emissions are difficult to detect, locate, regulate, and control. However, it is anticipated that the SIP process will reduce PM concentrations to lower levels, and maintain these levels, by identifying and addressing significant PM sources.

It should also be noted that forecasts of future air quality conditions under the No Action Alternative rely upon available air quality planning documents which typically have a planning horizon of approximately 5 to 20 years. The study period for the PEIR and the No Action Alternative is 75 years. While consistency with air quality planning documents is critical, they may have limited value when trying to predict actual air quality conditions in 75 years. In the absence of long-term air quality planning documents, the pollutants and emissions sources described above are expected to continue, and air emissions will very likely increase in the future, along with the forecasted population growth and increased development in the project area. Likewise, air quality planning documents may be expected to evolve as growth and development occur.

EXISTING AND PROJECTED EMISSIONS

Particulate Matter Emissions Under Existing Conditions

Existing emissions estimates for particulate matter emissions in the Salton Sea Air Basin were taken from the 2004 California Almanac of Emissions and Air Quality (ARB, 2005c) to allow comparison to estimates of uncontrolled emissions from exposed Playa under the No Action Alternative. The 2004 estimated annual average fine particulate matter (dust) emission rates for the Salton Sea Air Basin are provided in Table 3. ARB is currently in the process of revising these emissions estimates and the methods used to calculate them. Clearly, the predominant source of particulate matter in the area is fugitive windblown dust.-

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Table 3
2004 Estimated Annual Average Fine Particulate Matter (PM_{10}) Emissions in the Salton Sea Air Basin (tons/day)

Emission Source	Imperial County	Riverside County	Total
Farming Operations	17.7	1.2	18.8
Construction and Demolition	1.9	6.4	8.3
Paved Road Operations	4.1	5.8	9.9
Unpaved Road Dust	33.3	2.1	35.4
Fugitive Windblown Dust	172.8	7.5	180.3
Other Sources	6.5	1.5	8.1
Total All Sources	**236.3**	**24.5**	**260.8**

Source: California Air Resources Board, 2004 Estimated Basin Data, www.arb.ca.gov

Emissions from Exposed Playa Under the No Action Alternative

To assess potential air quality conditions under the No Action Alternative, this technical memorandum provides an estimate of potential emissions from uncontrolled exposed playa and discusses potential control measures to minimize impacts from those emissions.

As shown in Figures 1 and 2, under the No Action Alternative, it is estimated that by 2017 approximately 15,000 acres of currently submerged seabed will be exposed and become a potential source of fugitive dust emissions, as described below. By the year 2046, an additional 45,000 acres would be exposed as the IID Water Conservation and Transfer project is implemented, and mitigation water is no longer provided to the Sea. Other projects and actions contributing to the reduction in inflows include the Mexicali Wastewater Treatment Plant, Mexicali Power Production, and the elimination of the availability of Colorado River surplus flows to Mexico. Between 2046 and 2077 exposed acreage may fluctuate slightly but is not expected to change dramatically. (NUMBERS TO BE CHECKED…)

Playa Dust (PM_{10}) Emissions Estimates

Windblown fugitive dust may occur from the exposed playa as Sea levels are reduced, if emissions controls are not implemented. Dust particles are a health concern because small dust particles may become lodged deep within the lungs diminishing breathing capacity. Particles smaller than 10 microns in aerodynamic diameter are regulated as PM_{10}.

Under the No Action Alternative, it is assumed that dust emissions from the exposed playa will be controlled by implementation of the four-step air quality plan, in concert with SIPs produced by local air districts. Nevertheless, it is desirable to quantify emissions, so that the magnitude of the potential problem can be properly considered when assigning priority to air quality management actions. In this section, the following are described:

1. A conservative estimate of uncontrolled emissions from exposed playa
2. Modeling techniques that will be used to refine these estimates

Air quality management actions to reduce emissions to levels required to meet SIP goals are described in a later section.

As described in greater detail below in the section on emissions controls, there is uncertainty regarding the extent of potential emissions from the playa as it becomes exposed over time. Areas of uncertainty are related to the potential for the playa surface to form a crust that will be resistant to producing emissions. Various conditions including temperature, wind intensity and frequency, the presence of sand, and chemistry of the soils all contribute to the crust conditions. As part of the ERP project (and under Step 2

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of the air quality plan), research is underway to reduce uncertainty regarding potential emissions from the exposed playa. However, in the absence of an alternative approach to quantifying emissions at this juncture, this No Action Alternative report uses an equation developed by ARB for estimating fugitive windblown dust emissions. The ARB equation is:

Es=AIKCL'V',

Where: Es = suspended particulate fraction of wind erosion losses, tons/acre/year;

A = portion of total wind erosion losses that would be measured as suspended particulate;

I = soil erodibility, tons/acre/year;

K = surface roughness factors, dimensionless;

C = climate factor, dimensionless;

L' = unsheltered field width factor, dimensionless; and

V' = vegetative cover factor, dimensionless.

This equation was used by ARB to estimate emissions from agricultural lands and is a modification of the United States Department of Agriculture – Agricultural Research Service (USDA-ARS) Wind Erosion Equation (WEQ) (Hagen, 1996). The ARB modified WEQ, because the WEQ has a tendency to produce inflated emissions estimates. The modified WEQ, presented above, is referred to as the ARBWEQ (ARB, 1997). A table presenting the resultant calculations of uncontrolled fugitive windblown dust for the No Action Alternative is provided as Attachment 1. The results of these calculations do not include any reductions from implementation of the four-step plan or any other mitigation.

The value for A is estimated to be 0.025 and was not modified from the original WEQ. The I factor is a function of soil particle diameter, and was estimated for Imperial County by ARB for the southeastern desert to be 86. The K factor reflects the reduction in wind erosion due to ridges, furrows, and soil clods. It was assumed that the playa will not be perfectly flat, nor will it be plowed and therefore furrowed, therefore a K factor of 0.80 was used. The C factor developed by ARB for Imperial, Riverside, and San Bernardino Counties is 1.274. The typical unsheltered field factor (L') for agricultural lands varies between 0.56 and 0.83. It is anticipated that the exposed playa would have very little sheltering, so the high value of 0.83 was incorporated into the equation. Lastly, it was assumed the exposed playa would not have any natural vegetation so the V', vegetative cover factor, was set at 1.

The results of calculations using the factors as described, and assuming no emissions control, are:

- Approximately 13,640 tons/year PM_{10}, or 37.4 tons/day on an annual average basis, after the first 17 years, when an estimated 15,000 acres of playa would be exposed.
- Approximately 54,560 tons/year PM_{10}, or 149.5 tons/day on an annual average basis, from 2046 to 2078, when an estimated 60,000 acres of playa would be exposed.

The latter estimate would increase the current fugitive windblown dust emissions inventory for PM_{10} in the Salton Sea Air Basin (180 ton/day in 2004) by approximately 80 percent. This comparison does not include changes in emissions from other sources of PM_{10} that may occur during the 75-year project duration.

The USDA-ARS continues to improve WEQ and is developing the Wind Erosion Prediction System (WEPS) model. Another empirical method for estimating windblown fugitive dust emissions known as the "MacDougall Method" has been applied in some desert regions (MacDougall and Uhl, 2002). These methods may also be applied to exposed playa, along with playa-specific adaptations, and may provide lower estimates.

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Study and development of these alternative methods of emissions estimation are on-going. The current plan is to use these methods later to support air quality impact analyses of alternatives, including the No Action Alternative, in the ERP PEIR.

The estimates described here are conservative. They are intended to provide a worst-case "bookend" of potential uncontrolled emissions from the exposed playa. As discussed below in the Playa Emissions Control section, when developing an approach to mitigating emissions from the exposed playa, consideration of site-specific conditions and variability of emissivity should be taken into consideration. The approach used here assumes uniform conditions and uniform emissivity across the playa, and therefore it will be replaced in future air quality impact analyses by tools that will more accurately account for variabilities in playa properties and emissivity.

Other Constituents of Potential Concern

It is possible that exposed playa may contain levels of compounds of potential concern that are higher than the natural background levels found in soils of the western U.S. It is also possible that these compounds may become airborne and be present in windblown dust (or PM_{10}) generated from the exposed seabed. Human and animal exposure could occur through inhalation, dermal contact, or ingestion. Health effects could occur if the project creates an incremental increase in airborne contaminants relative to baseline conditions. Impacts on dust emissions on agricultural productivity may also be an issue.

Chemical content of sediments to be exposed is discussed in this section. For each constituent, potential exposure is dependent on the concentration of particulate matter in respired air (which depends more on emissions), and the concentration of a constituent in the particulate matter (which depends more on sediment chemistry). Therefore, elevated constituent concentrations in sediments only pose a health hazard if sediments become airborne and humans or animals are exposed to them. By the same token, regardless of the levels of constituents of concern, elevated PM_{10} concentrations in air can contribute to community and animal health effects, and may also affect agricultural productivity.

In a 1999 study, Levine-Fricke conducted a comprehensive study to evaluate sediments underlying the Salton Sea, collecting sediment samples at 73 locations in the Salton Sea and its three main tributaries (Levine Fricke, 1999). The study found concentrations of the following substances in the seabed sediment at levels that exceeded maximum baseline concentrations for soils in the Western U.S.:

- cadmium
- copper
- molybdenum
- nickel
- zinc
- selenium

The Levine-Fricke study also found that organic chemicals commonly used in agriculture in previous years were *not* detected at elevated concentrations in the sediment. These chemicals include DDT, many semivolatile organic compounds, chlorinated pesticides and PCBs, organophosphate and nitrogen fertilizers, and chlorinated herbicides.

Another potential chemical of concern is arsenic, because the background level of arsenic in some western U.S. soils already exceeds EPA's Preliminary Remediation Goal (PRG) for arsenic in residential soil. (The PRGs combine current EPA toxicity values with "standard" exposure factors to estimate contaminant concentrations in environmental media that are considered protective of humans, including sensitive groups, over a lifetime). However, the Levine-Fricke study did not find elevated levels of arsenic in the Salton Sea sediment relative to the maximum baseline concentration for soils in the western U.S.

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Other more limited studies have collected and analyzed Salton Sea sediment samples. These sampling efforts were mostly targeted to specific locations where localized problems were expected to exist. Specific examples include sampling conducted offshore of the U.S. Navy's Salton Sea Test Base, where non-explosive test ordinance have been dropped into the sea, and the outlets of major tributaries such as the Alamo and New Rivers. In these areas, elevated concentrations of specific organic and inorganic constituents associated with localized activities or land uses have been found.

At the time of the publication of the IID Water Conservation and Transfer EIR/EIS, available data were not adequate to pinpoint the locations and extent of elevated metals concentrations in the future exposed shoreline sediments. This notably constrained efforts to estimate emissions and evaluate health effects.

Additional sediment sampling has recently been completed at the Salton Sea, and samples from this effort, along with archived samples from prior sample collection, will be analyzed for compounds of potential concern. This information will add to existing knowledge of sediment chemical composition at the Sea.

Playa Emissions Controls

Discussions of dust control methods in this document are preliminary for several reasons. First, implementation of the four-step air quality plan is the responsibility of IID, as specified under the SWRCB Order. Financing of this plan has been assured by agreements under the QSA and state legislation. The research, planning, and implementation efforts under the four-step air quality plan are not limited to the dust control methods described in this No Action Alternative report.

Second, the objective of Steps 1 and 2 of the four-step plan is to develop dust control methods that are well adapted to the Salton Sea. The types of dust control to be selected will depend on available water supply, capital costs, and the potential for unwanted environmental impacts, and the selected measures may change in the 75-year study period.

Third, dust control will be further investigated as other alternatives are developed in the ERP and in related studies that may follow. For example, experience gained from implementation of dust control measures at Owens Lake has been drawn upon to describe emissions, monitoring, and potentially applicable dust control measures at the Salton Sea. Therefore, empirical knowledge of playas and associated dust control will be incorporated to the extent possible for Salton Sea.

According to the four-step air quality management plan for the IID Water Conservation and Transfer Project discussed above, if sufficient offsetting emission reduction credits are not available or feasible, Step 4 of the plan would be implemented. It would include either 1) implementing feasible dust mitigation measures or 2) supplying water to the Sea to re-wet emissive exposed areas, or a combination of both. Additional environmental documentation may be required for implementation, of Step 4. Selection of dust control measures to be used under the No Action Alternative is currently under the authority of IID.

Much of the playa emissions control technology thought to be applicable to the Salton Sea has been developed during the study and implementation of dust control on the Owens Lake playa in Inyo County, California. The Owens Lake case is generally similar to the Salton Sea No Action Alternative, in that inflows to a terminal lake have been reduced in recent history, and as a result, considerable portions of the playa have been exposed. This leads to the potential to emit dust under certain climatic conditions. The Owens Lake case, however, is notably different from the Salton Sea Ecosystem Restoration Plan No Action Alternative in the following ways:

- The Owens Lake playa was exposed to near its current extent before recognition of the dust emissions problem, and therefore, many of the requirements for dust controls were developed and tested on the exposed playa before implementation of any dust control measures. This situation allowed detailed

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study of the emissions mechanisms and control measures Exposed playa also allowed for extensive sand and air quality monitoring, and allowed prioritization of efforts and implementation of control measures on the more emissive sites within the overall exposed playa.

- The chemical characteristics of the waters of Owens Lake were notably different from the current waters of the Salton Sea, and accordingly, the expected chemistry of future surface sediments of the exposed Salton Sea playa are expected to be different from those at Owens Lake. The chemical characteristics and the resulting crust formation and composition are significant factors affecting the level of emissions at Owens Lake.
- The availability of mobile sand, determined to be a key controlling factor at Owens Lake, is uncertain in the vicinity of the Salton Sea. In general, it is anticipated that mobile sand sources are less prevalent at the Salton Sea.
- The current and anticipated climatic conditions in the vicinity of the Salton Sea are notably different than at Owens Lake. In general, the exposed playa at the Salton Sea should experience less frequent and less severe high wind conditions along with higher (winter and summer) temperatures. The wind speeds and temperatures, along with humidity and soil surface chemistry, together determine crust stability and playa emissions at Owens Lake.

Due to differences between Owens Lake and Salton Sea, the levels of future potential emissions from exposed playa at the Salton Sea are uncertain, but will likely be significantly less than those predicted by the ARB equation described above. The emissions estimates predicted using the ARB equation predict a maximum of about 150 tons per day of fugitive dust. This conservative approach assumes that all areas of the playa will emit uniformly and does not consider the potential for natural crusts to from which would inhibit fugitive dust emissions. At Owens Lake, only approximately 20 to 40 percent of the exposed playa has so far been identified as significantly contributing to emissions. The fraction of exposed Salton Sea playa that may contribute significantly to emissions may be less than that at Owens Lake. At the least, it is reasonable to expect that emissive areas will be less than the 100 percent assumed by the ARB equation.

Performance Criteria for Playa Dust Control Measures

The No Action Alternative includes implementation of the four-step air quality plan, including the research and monitoring program as Step 2. Step 2 will support definition of appropriate performance criteria for playa dust control measures. These performance criteria will need to be consistent with SIPs developed by local air quality districts. The SIP emission inventories (in turn) would include anticipated playa and non-playa emissions, and would employ air quality dispersion models to determine the level of emissions reductions required to achieve air quality goals. The SIPs will define and require application of Best Available Control Measures (BACM) to reduce emissions from playa and non-playa sources.

Possible Extent of Playa Dust Control Measures

Up to approximately 60,000 acres of exposed playa are anticipated under the ERP No Action Alternative over the next 75 years. The IID Water Conservation and Transfer Project is projected to result in 45,000 acres of this total, and mitigation and funding have been identified for this exposed playa. The remaining 15,000 acres do not fall under the existing four-step air quality plan, and if they become emissive, may add to air emissions in the Salton Sea watershed.

Under the four-step air quality plan for the Transfer Project, only areas not otherwise stabilized will be treated with playa dust control measures. Formation of a natural crust may be a significant stabilizing factor over much of the exposed playa. Public access, especially for off-highway vehicles will be limited, to the extent legal and practicable (as described in Step 1 of the four-step air quality plan). This would have the effect of minimizing disturbance of natural soil-surface crusts and is viewed as the most

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important and cost-effective measure to minimize emissions. IID and governmental entities own or control most of the land adjacent to and under the Salton Sea. To effectively exclude traffic, all of these lands would be posted, fenced, and patrolled to minimize traffic on all exposed playa areas.

As required by the SWRCB Order, dust mitigation would be undertaken in accordance with local SIPs. Implementation of playa dust control measures would necessarily be phased according to the rate of playa exposure during the No Action period. Permanent dust control measures will likely be implemented in phased steps of buildable units that are determined to be practical. This implementation of buildable units will be paced to respond to gradual exposure of emissive playa soils (identified by monitoring and/or research). It is anticipated that temporary controls may be implemented to control exposed areas as needed until areas large enough to be feasibly treated with permanent measures are accessible.

Potentially Feasible Playa Dust Control Measures

It is recognized that under steps 2 and 3 of the four step air quality plant, additional information will be developed regarding the extent of potential emissions and the location of areas that may need to be treated with dust emissions control measures. It is also recognized that the selection of these measures is currently the responsibility of the IID. However, selected dust control measures that appear compatible with expected playa conditions at the Salton Sea under the No Action Alternative are described here, for discussion purposes only,.

Potentially Feasible Temporary Option

Sand Fences

Temporary dust control measures might be implemented to control limited emissive areas until conditions develop that allow construction of more extensive, permanent facilities. A feasible temporary measure is sand fences.

Sand fences limit emissions by capturing mobile sand that would otherwise more readily saltate across the playa, breaking up the surface and causing detachment and entrainment of dust.

Sand fences need to be designed for the wind and sand flux conditions in which they are placed, and require maintenance. When the fence's capacity to hold mobile sand is reached, it is no longer effective. In areas with large amounts of mobile sand, the fences' capacity can be quickly saturated. However, there is a place for sand fences where they are the most practical option due to temporary or evolving conditions, the need to respond quickly, or a localized problem. One possible application at Salton Sea is in poorly drained beach areas, before they become buildable, but where there is nevertheless a need for immediate control.

Potentially Feasible Permanent Options

Stabilization with Brine

Crusts limit emissions by cementing the land surface into an erosion-resistant cover on the soil. The development of various Salton Sea playa crusts as a function of climate and other conditions will likely be investigated under Step 2. Should crusts prove perennially stable, then no other dust control may be required. At the opposite extreme, should crusts prove unreliable protection against unacceptable levels of emissions, other control might be required. An intermediate result, however, would favor consideration of crust enhancement for dust control.

If crusts were not effective at stabilizing desert playas, fugitive windblown dust emissions from these areas would depend uniquely on wind speed. The seasonality of observed emissions from other playa indicates that this is not the case. However, crusts can be softened by weather (temperature and relative humidity), broken by erosion (such as that caused by mobile sand), and weakened by net removal of salts

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(through leaching or erosion). Where crusts frequently and unpredictably degrade over large land areas, other controls are necessary. Where they are stable over years and only destroyed very rarely, their maintenance is more feasible.

The main method for delivery of salt to land surfaces for crust reinforcement would be occasional irrigation with saltwater or brine. Irrigation events would be triggered by crust-weakening events, or observed crust degradation. Where ecotoxic sediments occur, prolonged wetting and the formation of habitat attractive to wildlife would need to be avoided.

Stabilization with Irrigated Vegetation

Vegetative dust control limits emissions by altering wind velocities at the soil surface. Wind speeds are reduced in the presence of a plant canopy due to the resistance of that canopy to the flow of air, and the slowing effect of friction on windspeeds within and beneath the canopy.

Vegetation species adapted to the playa environment must tolerate salinity and require as little irrigation water as possible. Native plants are one reasonable resource, because some of them have evolved in local, dry, saline, alkaline conditions. Certain non-native vegetation may be attractive where it combines similar tolerances with propagation, agronomic, habitat, or economic advantages.

Limited availability of propagation material and poorly documented agronomic characteristics are potential difficulties related to large-scale planting of native plants.. However, with a few years lead time for implementation, these issues may be addressed through targeted effort and research.

The following are some of the positive attributes supporting a preliminary finding of feasibility for irrigated, salt-tolerant, native vegetation:

- Projected water requirements of approximately a foot per acre for irrigated desert shrubs.
- Potential for relatively low maintenance and reliable control after establishment.
- Similarity to native desert shrub habitat.

Some challenges include the following:

- Identification, construction, and operation of buildable units on a schedule that controls emissions before they occur. This may require that temporary measures (see above) be applied during an interim period.
- Likely need for underdrainage on some or all of the controlled area.
- Infrastructure for irrigation, saltwater recycling (storage and conveyance), blending, and water quality management.
- Required propagation, planting, and establishment of native vegetation.
- Capital costs associated with these components.
- Consumptive use of water.

Emissions from Sources Other than Exposed Playa Under the No Action Alternative

Under the No Action Alternative, the projects listed in Table 1 are presumed to occur. These projects include many emissions sources, in addition to exposed playa, that may affect regional air quality. Table 4 lists the types of sources that may be involved in projects under the No Action Alternative, the pollutants of concern that they may emit, and potential controls to reduce or eliminate pollutant emissions from

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these sources. Information on emissions control efficiency, feasibility, and costs of these measures is being developed as part the ERP PEIR, and will be the subject of a separate technical memorandum.

Table 4
Potential Sources, Pollutants, and Controls Under the No Action Alternative

Potential Sources	Pollutants of Concern	Potential Control Measures
Population-Induced Area Sources	PM, NO_x, SO_x, CO, ROG and HAPs	
gasoline fueling stations	ROG and HAPs	Phase I and II vapor controls (99 percent control of ROG)
residential fuel use	Primarily NO_x	Energy efficient homes, only electric heat and appliances
dry cleaners	Primarily ROG and HAPs	Low VOC, low HAPs materials, non-HAP solvents
fuel storage and handling	Primarily ROG and HAPs	Best Available Control Measures
Construction—Equipment	PM, NO_x, SO_x, CO, ROG and HAPs	
diesel combustion	Primarily NO_x, PM, and HAPs (Diesel PM)	Newer engines, catalyst systems, particle traps, hybrids, biodiesel. Limit idling.
gasoline combustion	Primarily NO_x, ROG, and HAPs	Newer engines, catalyst systems, hybrids
Construction—Fugitive Dust	PM	Surface Wetting Best Management Practices Application of chemical stabilizers Limitation on activities under specified wind conditions Limitations on access/limit soil disturbance Cover storage piles
Dying or Dead Biota	ROG, HAPs and Odors	Control algal growth; keep things alive
Volatilization of Compounds from Sea or drain water	Primarily ROG and HAPs	Limit/Eliminate discharges of volatile compounds to Sea or drain water
Farming	PM, NO_x, SO_x, CO, ROG and HAPs	
soil disturbance—dust	PM	Limitation on activities under specified wind conditions; limitations on access/limit soil disturbance, Best Management Practices, Best Farm Practices
material storage and transport—dust	PM	Cover storage piles and material in transport vehicles
engines—fuel combustion	PM, NO_x, SO_x, CO, ROG and HAPs	Newer engines, catalyst systems, particle traps
chemical use: pesticides, herbicides, fertilizers	ROG and HAPs	Low VOC, low HAPs materials; Best management practices for pesticide use
land fallowing	PM	Limitations on access/limit soil disturbance, Best Management Practices, Best Farm Practices

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Table 4
Potential Sources, Pollutants, and Controls Under the No Action Alternative

Potential Sources	Pollutants of Concern	Potential Control Measures
Vehicles/Mobile Sources	PM, NO_x, SO_x, CO, ROG and HAPs	
fuel combustion/exhaust	Primarily NO_x, ROG, and HAPs	Newer engines, catalyst systems, particle traps. Limit vehicle miles traveled. Reduce roadway congestion.
tire wear		Maintain streets; proper inflation and maintenance of tires
entrained road dust	PM	Keep streets/roads swept and clean
Off-road Vehicles, including Boats and Rail	PM, NO_x, SO_x, CO, ROG and HAPs	
fuel combustion/exhaust	Primarily NO_x, ROG, and HAPs	Newer engines, catalyst systems, particle traps
Wind-blown Fugitive Dust	PM (Potentially HAPs?)	Managed vegetation Surface wetting Application of chemical stabilizers Crust management Limitations on access/limit soil disturbance Sand fences Gravel blanket

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POTENTIAL EFFECTS OF NO ACTION ALTERNATIVE EMISSIONS ON AIR QUALITY

Ideally, the new and updated AQMPs and SIPs under development and implementation by the regulatory agencies must consider the emissions sources that are reasonably expected to occur in the foreseeable future, based on current plans and projects. These air quality plans must demonstrate attainment of ambient standards. Air quality goals can be presumed to be achieved in approximately the next 5 to 20 years, under the No Action Alternative. As discussed previously, PM_{10} is a possible exception, due to the difficulty of controlling fugitive windblown dust from vacant lands and other diffuse sources.

It is not realistic to assume that air quality goals can be demonstrated to be achieved without requirements for playa emissions control in place, given the estimates of uncontrolled emissions for the No Action Alternative, and in particular, the fugitive dust emissions estimated for exposed, uncontrolled playa. Implementation of SB 654, the QSA, and the IID Water Conservation and Transfer Project Mitigation, Monitoring, and Reporting Program precludes a No Action Alternative that does not include the four-step air quality plan to control emissions from the playa exposed under QSA-related projects. However, emissions from other exposed, uncontrolled playa may significantly cause or contribute to violations of ambient air quality standards in the study area.

Although the State and the QSA parties together have responsibility for mitigating emissions from much of the exposed playa that is anticipated under the No Action, specific implementation of control measures is not currently defined. Further, the construction and operation of these emission control measures may require separate environmental review. For the purposes of the No Action Alternative for the Salton Sea ERP, it is assumed that the four-step air quality plan from the 2003 Imperial Irrigation District Water Conservation and Transfer Project Mitigation, Monitoring, and Reporting Program will be implemented as described. Existing information is not sufficient to quantify the emissions and define air quality

conditions remaining after mitigation. The conclusion of this administrative draft technical memorandum is that the No Action Alternative results in the potential for significant contributions of fugitive dust emissions in the Salton Sea Air Basin.

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ATTACHMENT 1

No Action Alternative Uncontrolled Fugitive Windblown Dust Calculations

Attachment 1: Non Action Alternative Uncontrolled Fugitive Windblown Dust Calculations

ARB Method for Estimation of Fugitive Windblown Dust Emissions from Agricultural Lands

Emission Factor Equation:	**Es = AIKCL'V'**		**Annual Average Daily Emissions**
A = Portion of Total Wind Erosion Losses that would be Measured as Suspended particulate:	0		
I = Soil Erodibility:	86	tons/acre/year	
C = Climatic Factor:	1		
K = Surface Roughness:	1		
L' = Unsheltered Field Width Factor:	1		
V' = Vegetative Cover Factor:	1		
NOTE: Factors obtained from table on pg. 10.11.1-2 of ARB document			
PM_{10} Emissions for 12,000 acres…			
Es	2	tons/acre/year	
Emissions = (Emission Factor x Acres)	21,825	tons/year TSP	
PM_{10} Emissions = Emissions x 0.5	10,913	tons/year PM_{10}	29.9
PM_{10} Emissions for 65,000 acres…			
Es	2	tons/acre/year	
TSP Emissions = (Emission Factor x Acres)	118,220	tons/year TSP	
PM_{10} Emissions = TSP Emission x 0.5	59,110	tons/year PM_{10}	161.9
PM_{10} Emissions for 15,000 acres…	2	tons/acre/year	
Es	27,281	tons/year TSP	
Emissions = (Emission Factor x Acres)	13,641	tons/year PM_{10}	37.4
PM_{10} Emissions = Emissions x 0.5			
PM_{10} Emissions for 60,000 acres…	2	tons/acre/year	
Es	109,126	tons/year TSP	
TSP Emissions = (Emission Factor x Acres)	54,563	tons/year PM_{10}	149.5
PM_{10} Emissions = TSP Emission x 0.5			

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